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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/838,708	04/18/2001	Lee Felsenstein	INT1P212	8801

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EXAMINER

LE, TOAN M

ART UNIT	PAPER NUMBER
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2862

DATE MAILED: 07/03/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/838,708

Applicant(s)

FELSENSTEIN ET AL.

Examiner

Toan M Le

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 April 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-80 is/are pending in the application.
- 4a) Of the above claim(s) 12-68, 79-80 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 and 69-78 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:

I. **Claims 1-62 and 69-78**, drawn to a magnetic field detection device with a separate pick up, classified in **class 324, subclass 207.17**.

II. **Claims 63-68**, drawn to impedance, admittance or other quantities representative of electrical stimulus/response relationships including a tuned or resonant circuit, classified in **class 324, subclass 655**.

III. **Claims 79-80**, drawn to a magnetic field detection device with compensation measurement, classified in **class 324, subclass 207.12**.

2. These inventions are distinct, each from the other because of the following reasons:

Invention I drawn to a position detection system for locating an object including a magnetic field generator and a method for detecting position of an object including a resonator. **Invention II** drawn to a position detection system for locating an object including a resonator. **Invention III** drawn to a method for detecting position of an object including a resonator comprising disabling the receivers and drivers, enabling the drivers and receivers. Each **inventions I, II, and III** spans a specific art area of detecting position of an object.

3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classifications, restriction for examination purposes as indicated is proper.

4. Because these inventions are distinct for the reasons given above and the search required for **Group I** is not required for **Groups II** and **III**, restriction for examination purposes as indicated is proper.

5. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper.

6. If the applicant elects **invention I**, above, then the applicant must elect a single species below.

7. This application contains claims directed to the following patentably distinct species of the claimed invention: **claims 1-62**.

8. Ia. **Claims 1-11** are generic. Claims 1-11 cite a position detection system for locating an object including a magnetic field generator.

9. IIa. **Claims 12-22** cite a position detection system for locating an object including a magnetic field generator with sinusoidally varying conductors.

10. IIIa. **Claims 23-43** cite a position detection system for locating an object including a magnetic field generator with constant spacing conductors.

11. IVa. **Claims 44-49** cite a position detection system for locating an object including a magnetic field generator with grouping conductors.

12. Va. **Claims 50-54** cite a position detection system for locating an object including a magnetic field generator with grouping conductors of three.

13. VIa. **Claims 55-62** cite a position detection system for locating an object including a magnetic field generator with a second array of parallel conductors.

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable.

Applicant is advised that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable thereon, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

14. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

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15. During a telephone conversation with Ritter Pelt on 6/18/02 a provisional election was made without traverse to prosecute the invention of **Group I, claims 1-11 and 69-78.**

Affirmation of this election must be made by applicant in replying to this Office action. **Claims 12-68 and 79-80** withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Claim Rejections - 35 USC § 112

Claim 4 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As to claim 4, in lines 1-3, "a plurality of drivers each associated with a parallel conductor and configured to drive current through to produce an energizing field", it is not clear about the structural relationship between the plurality of drivers and the magnetic field generator in producing an energizing field to an array of parallel conductors.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dames et al. in view of Okamoto et al..

Referring to claims 1-3, Dames et al. discloses a position detection system for locating an object including a magnetic field generator, comprising an array of parallel conductors

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responsive to a magnetic field generated by the magnetic field generator, a plurality of receivers each associated with a parallel conductor (col. 2, lines 18-20; figure 28), and a plurality of drivers each associated with a parallel conductor and configured to drive current through to produce an energizing field (col. 2, lines 36-39).

Dames et al. does not disclose a position detection system wherein the array of parallel conductors is configured to locate the object along the measurement path having a measurement axis, which is orthogonal to the array of parallel conductors.

Okamoto et al. discloses a position detection system wherein the array of parallel conductors is configured to locate the object along the measurement path having a measurement axis, which is orthogonal to the array of parallel conductors (col. 4, lines 54-56).

Accordingly, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have configured an array of parallel conductors orthogonal to the measurement path as described in the Okamoto et al. reference in the system of Dames for reducing the electromagnetic interference from the measured object to have a more accurate position detecting system.

As to claims 4-11, Dames et al. discloses a position detection system for locating an object including a magnetic field generator, comprising a plurality of drivers each associated with a parallel conductor and configured to drive current through to produce an energizing field (col. 2, lines 36-39) and a resonator that is energized by the energizing field including an inductor and capacitor (col. 2, lines 43-45; figure 2a).

Dames et al./Okamoto et al. do not disclose a position detection system for locating an object including a magnetic field generator, wherein at least one driver is configured to send

current through the associated parallel conductor in one direction, and at least one driver is configured to send current through the associated parallel conductor in an opposite direction, the drivers are configured so that net current through the array of parallel conductors is substantially zero, and a return conductor to balance current between the drivers and produce a constant offset to the energizing fields produced by the array of parallel conductors.

However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have included at least one driver is configured to send current through the associated parallel conductor in one direction, and at least one driver is configured to send current through the associated parallel conductor in an opposite direction, the drivers are configured so that net current through the array of parallel conductors is substantially zero, and a return conductor to balance current between the drivers and produce a constant offset to the energizing fields produced by the array of parallel conductors for balancing the net current flowing through the conductors to eliminate electromagnetic interference in the measuring circuitry to have a more precise position detection system.

Claims 69-78 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dames et al. in view of Okamoto et al..

Referring to claims 69-78, Dames et al. discloses a method incorporated into a system for detecting position of an object including a resonator, comprising: providing an array of parallel conductors responsive to the resonator, a plurality of receivers, and associated each receiver with a parallel conductor; a plurality of drivers each driver associated with a parallel conductor to drive current through the associated parallel conductor to produce an energizing field; each receiver to receive current from the associated parallel conductor to sense magnetic flux from the

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resonator; and the array of parallel conductors includes spacing the parallel conductors apart by a constant spacing and by a sinusoidally variable spacing (col. 2, lines 18-20, 36-39, and 43-47; figures 2a and 28).

Dames et al. does not disclose a method incorporated into a system for detecting position of an object including a resonator, comprising configuring the array of parallel conductors to locate the object along a measurement path having a measurement axis, which is orthogonal to the array of parallel conductors.

Okamoto et al. discloses a method incorporated into a system for detecting position of an object including a resonator, comprising configuring the array of parallel conductors to locate the object along a measurement path having a measurement axis, which is orthogonal to the array of parallel conductors (col. 4, lines 54-56).

Accordingly, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have configured an array of parallel conductors orthogonal to the measurement path as described in the Okamoto et al. reference in the system of Dames et al. for reducing the electromagnetic interference from the measured object to have a more accurate position detecting method.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Patent No. 5,583,435 to Takemoto et al.

Patent No. 6,043,644 to de Coulon et al.

Patent No. 3,827,291 to McCalvey

Patent No. 5,486,731 to Masaki et al.

Patent No. 4,697,144 to Howbrook

Patent No. 6,005,387 to Andermo et al.

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These patents disclose a position detection system and method.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Toan M Le whose telephone number is (703)305-4016. The examiner can normally be reached on Monday through Friday from 7:30 A.M. to 4:30 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Lefkowitz can be reached on (703)305-4816. The fax phone numbers for the organization where this application or proceeding is assigned are (703)872-9318 for regular communications and (703)872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-0956.

Toan Le

June 27, 2002


EDWARD LEFKOWITZ
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800